Bonneville Power Administration
Fish and Wildlife Program FY98 Proposal Form

Section 1. General administrative information

Title Build Rock Vortex Weirs on Entiat River, Washington

Bonneville project number, if an ongoing project. 8020

Business name of agency, institution or organization requesting funding.
Chelan County Conservation District

Business acronym (if appropriate) CCCD

Proposal contact person or principal investigator:

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Subcontractors.
List one subcontractor per row; to add more rows, press Alt-Insert from within this table

Organization	Mailing Address	City, ST Zip	Contact Name
None			

NPPC Program Measure Number(s) which this project addresses.
7.7B.2--model watersheds; 7.8D.1--streambank restoration

NMFS Biological Opinion Number(s) which this project addresses.

The NMFS Biological Opinion for actions affecting upper Columbia steelhead is not completed at this time.

Other planning document references.

The need for this type of instream restoration work on the lower Entiat River has been specifically cited in the following planning documents:

(1) Habitat Assessment, Mid-Columbia Mainstem Habitat Conservation Plan for Chelan, Douglas, and Grant PUDs; Page 47.
(2) U.S. Forest Service Watershed Assessment, Entiat Analysis Area, Version 2.0; Page F.64.
(3) *Wy Kan Ush Me Wa Kush Wit*, recovery plan by Columbia River Intertribal Fish Commission; Page 76.
(4) Northwest Power Planning Council's Entiat River Sub-basin Plan; Page 52

Subbasin. List subbasin(s) where work is performed.

Entiat River Watershed, Washington State (WRIA Number 46)

Short description.

Construct two instream habitat structures on the Entiat River along private lands to demonstrate benefits of Model Watershed Plan.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish	X	Construction	X	Watershed
+	Resident fish		O & M		Biodiversity/genetics
	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	+	Ecosystems
	Climate		Monitoring/eval.		Flow/survival
	Other	+	Resource mgmt		Fish disease
			Planning/admin.		Supplementation
			Enforcement		Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.

Entiat Model Watershed Project

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
9202602	Eastern Washington Model Watershed Coordinators	The Entiat is not directly funded in this project, but was formed as a "Model Watershed," allowing better regional coordination and adaptive management.
9401800	Washington Model Watershed Projects	Same relationship as above.

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2, 3	Objective	Task a,b,c	Task
1	Build 2 vortex rock weirs		

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	7/98	8/98	100

Schedule constraints.

Weirs must be built in the 1988 summer low flow period (1 July to 15 August), after steelhead spawning and prior to spring chinook spawning. Demonstration tours will begin thereafter.

Section 5. FY 98 Budget

Item	Note	FY98
Personnel	Walking excavator (16 hrs @ $250/hr)	$4,000
Fringe benefits		
Supplies, materials, non-expendable property	600 cubic yards of rock @ $23/cy	$13,800
Operations & maintenance		
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		
PIT tags	# of tags:	
Travel		
Indirect costs	filter fabric, mesh, etc.	$2,000
Subcontracts		

Other		
TOTAL		$19,800

Section 6. Abstract

Landowners and technical staff from co-managing agencies and tribes completed their multiple resource management plan for the Entiat Watershed. This consensus plan is based on the Model Watershed Approach developed in the 1994 Columbia Basin Fish and Wildlife Program (Program Measure 7.7B). The plan identifies many actions to benefit wildlife and fish, particularly steelhead, listed as "endangered" under the federal Endangered Species Act (ESA). We expect to implement most actions in 1999 to 2002. In July 1998, we plan to install two vortex rock weirs on the lower Entiat River adjacent to private lands. We request $19,800 from BPA to build these weirs. This will show local citizens what can be done under the Model Watershed Plan to help recover salmon and steelhead. The types and locations of the weirs were identified by a multidisciplinary team of specialists from agencies and tribes, and approved by landowners. This project will be done in one month. Short-term success will be evaluated by the acceptance of other landowners to participate in the Plan. Long-term success will be measured in (1) stream characteristics (e.g.; pool:riffle and width:depth ratios), (2) microhabitat use of salmon and steelhead, (3) structure longevity, and (4) cost effectiveness compared to other restoration projects in the watershed.

Section 7. Project description

In 1992 landowners and technical staff from co-managing agencies and tribes began work on a Model Watershed Plan. The mission statement for this plan is *To voluntarily bring people together to improve communications, reduce conflicts, address problems, reach consensus, and implement actions to improve natural resource management on associated private and public lands in the Entiat Watershed.* Landowners initiated this process based on a 1991 workshop sponsored by the Northwest Power Planning Council (NPPC), and has followed the strategies outlined in Program Measure 7.7B of the NPPC's Columbia Basin Fish and Wildlife Program (FWP). This plan is completed and will be released in January 1988. The plan will be updated as necessary to reflect new scientific, social, and political issues. The action plan includes a multi-year project schedule which addresses water quality problems, public education, and the protection and restoration of salmonid habitat. This plan will be submitted to National Marine Fisheries Service (NMFS) as an important step in development of a multi-species Habitat Conservation Plan. If approved, this will provide affected landowners a Section 10 incidental take permit for steelhead, listed as "endangered" under the ESA.

b. Proposal objectives.

A key component of the Entiat Model Watershed Plan is to restore salmonid habitat that was destroyed or eliminated during several stream channelization projects in the 1950s to control floods (CCCD 1996). The lower Entiat River (about 30 km) was extensively channelized and diked by the Corps of Engineers in 1958. As a result, activity

1.1 of the Entiat Model Watershed Plan states "work with funding agencies...to enlist landowners as cooperators for installation of instream habitat improvements where the river passes through or along their property."

As part of the Model Watershed Plan, the Entiat River was inventoried in September 1995 by a team of technical specialists with expertise in riparian ecology, stream geomorphology, fish ecology, aquatic habitat, and geology. The inventory included all reaches that flowed through private lands (CCCD 1996). The results of this inventory was the identification of five alternatives for treatment levels, ranging from "minimal action" to "restoration to pre-settlement conditions." These alternatives were reviewed by the landowner steering committee, who tentatively selected alternative 2, which recommends, among other actions, the placement of 40 instream habitat structures in a 20 km reach of the lower Entiat River (Attachment A). Ten different structure types will be used for this restoration work, based on technical analyses of the physical characteristics of the stream and fish habitat needs.

To initiate the program, the Landowner Steering Committee selected two sites in Reach #2 (sites # 9 and 10; Attachment A), comprised of vortex rock weirs (Attachment B) for 1998. One purpose of these structures is to demonstrate to Entiat Valley landowners of the type of actions to benefit salmon and steelhead under the Model Watershed Plan. The Landowner Steering Committee needs to garner public support in this work. Most actions to restore habitat will then begin in 1999, presumably funded in part by the Mid-Columbia PUDs Habitat Conservation Plan (refer to next section). In addition, we will submit a subsequent application to BPA for funding of projects in FY99. However, the importance of the FY98 funding is to demonstrate to landowners that the Model Watershed Planning process was beneficial and results-oriented. The Landowner Steering Committee wishes to ensure local support by beginning work in 1998.

c. Rationale and significance to Regional Programs.

Completion of the Entiat Model Watershed Plan fulfills the requirements of Program Measure 7.7B.2. At this stage the Entiat Landowner Steering Committee wishes to implement this plan, thereby meeting Program Measure 7.7B.3, where "...priority on-the-ground..." work is performed. This action will also meet Program Measure 7.8D.1 to "...work with model watershed committees... to protect underwater lands..." The result of this work will be an immediate improvement in adult holding and juvenile rearing conditions for natural salmon and steelhead in the Entiat River. The Landowner Steering Committee feels this action is particularly important with the August 11 1997 decision by NMFS to list steelhead in the Entiat River as "endangered" under the ESA. The two rock weirs have been identified by landowners and technical staff as priority actions for 1998; more will be selected for completion in 1999.

d. Project history.

The Entiat Model Watershed planning project has been underway since 1992, based on cost-share or "in-kind" contributions from the Entiat Watershed Landowners, the Natural Resource Conservation Service, Chelan County, the Mid-Columbia Public Utility

Districts, and the agencies and tribes represented on the Entiat Model Watershed Plan Technical Advisory Committee (TAC). Actual implementation will begin in 1998.

e. Methods.

The TAC for the Entiat Model Watershed emphasized passive restoration and protection of habitat, yet recognized that active structural work is required on the lower Entiat River to reduce channelization impacts. In many reaches, the stream channel has dikes on both sides. These dikes severely restrict lateral migration of the channel, limit large woody debris recruitment, and give the stream a very high width:depth ratio. Given this situation, the TAC felt installation of instream structures was practical.

All work will be done during the "hydraulic work window," a period in July and early August before spring chinook spawning, to eliminate risks to native salmon and steelhead. Permits will be secured from Washington Department of Fish and Wildlife (WDFW), Chelan County, and the U.S. Corps of Engineers for the work. The WDFW regional habitat biologist will review the site for potential impacts to fish prior to permit issuance.

f. Facilities and equipment.

A "walking excavator" will be used to construct the weirs, according to design specifications established by fluvial geomorphologists and fish habitat biologists. Fish habitat biologists with experience in constructing vortex rock weirs will supervise the project. Materials for construction will be secured from the Entiat Ranger District, Wenatchee National Forest.

g. References.

Bugert, R. M. and twelve coauthors. 1997. Aquatic species and habitat assessment: the Wenatchee, Entiat, Methow, and Okanogan Watersheds. Available from Chelan County Public Utility District, Wenatchee, WA. 104 pages.

CCCD (Chelan County Conservation District). 1996. Entiat River inventory and analysis. Available from Chelan County Conservation District, Wenatchee, WA. 23 pages plus appendices.

CCCD 1997. Long-range plan and 1997-1998 annual plan of work. Available from Chelan County Conservation District, Wenatchee, WA.

USFS (U. S. Forest Service) 1996. Watershed Assessment: Entiat Analysis Area, version 2.0. Wenatchee National Forest, Entiat Ranger District, Entiat WA.

WDF (Washington Department of Fisheries), Yakama Indian Nation, Colville Confederated Tribes, and Washington Department of Wildlife 1990. Entiat River Subbasin Plan. Available from Northwest Power Planning Council, Portland, OR.

Wy Kan Ush Me Wa Kush Wit 1996. Recovery plan by the Columbia River Intertribal Fish Commission. Portland, OR.

Section 8. Relationships to other projects

The need for restoration of instream habitat on the lower Entiat River was identified in the following programs. Technical and financial support from the Mid-Columbia Habitat Conservation Plan will be sought by the Entiat Model Watershed, as that HCP is implemented. We will also solicit funds from BPA for FY99 activities.

(1) The Mid-Columbia Habitat Conservation Plan

The Mid-Columbia Public Utility Districts (Chelan, Douglas, and Grant) own and operate five hydroelectric dams on the mainstem Columbia River, and are in the process of developing a multi-species HCP and settlement agreement with the Federal Energy Regulatory Commission (FERC). As part of this comprehensive 50-year settlement, the PUDs will allocate $100 million for watershed protection and restoration projects in the Mid-Columbia Region, including the Entiat River. As part of that process, a team of agency, tribal, and PUD identified preferred actions for protection and restoration of habitat in the Mid-Columbia Region (Bugert et al. 1997): "...the most feasible results for habitat restoration [in the lower Entiat River] lies primarily in structure placement as an immediate improvement, and riparian setbacks as the long-term solution." This latter action will be addressed in the Model Watershed Plan in 1999.

(2) President's Forest Plan

The Entiat is a Key Watershed designated by the federal interagency "President's Forest Plan." Although this document specifically addresses those actions to be taken on public lands, it identifies the need for "...structural and vegetative treatments designed to reduce the width to depth ratio resulting in more diverse habitat..." in the lower Entiat River.

(3) Tribal Recovery Plan

The Columbia River Intertribal Fish Commission recommended the restoration of streambanks on the lower Entiat River to provide habitat for salmon and steelhead (*Wy Kan Ush Me Wa Kush Wit*.1996, page 76). They also recommended that riparian vegetation be re-established along the lower Entiat River. This latter action will be addressed in the Model Watershed Plan in 1999.

(4) Entiat Subbasin Plan

Under the NPPC subbasin planning process, the installation of instream structures for steelhead habitat was recommended for the lower Entiat River (WDF et al. 1990; page 52).

Section 9. Key personnel

Numerous local landowners will be involved in the project, but three individuals will supervise the work: (1) Bob Steele (B.S. Fisheries Resources, University of Washington, 1981), has 15 years experience as regional habitat manager for WDFW. Bob

has installed over 30 instream structures in the Entiat and Wenatchee watersheds; (2) Phil Jones (B.S. Forestry, University of Montana, 1964), has over 30 years experience in land use planning. Phil is the coordinator of the Entiat Model Watershed Plan; (3) Bob Bugert (M.S. Fisheries Resources, University of Idaho, 1985), has 12 years experience in fish habitat and hatchery issues for WDFW and the Mid-Columbia PUDs. Bob has installed over 20 instream structures on the Asotin and Tucannon watersheds.

Section 10. Information/technology transfer

The key mechanism for information transfer will be in guided tours of these structures to local citizens. As stated above, an important component of this work is to promote the benefits of habitat restoration to affected landowners in the Entiat River. Media coverage by local newspapers will be solicited during the project. Chelan County Conservation District will encourage tours of these sites by landowners in the Wenatchee Watershed who are currently developing watershed plans (CCCD 1997).

Long-term success will be measured in (1) stream characteristics (e.g.; pool:riffle ratio and width:depth ratio), (2) microhabitat use of salmon and steelhead, (3) structure longevity, and (4) cost/benefit ratios compared to other restoration projects in the watershed. This information will be used by the Mid-Columbia Habitat Conservation Plan, and other programs, to identify which actions provide the greatest benefits to salmon and steelhead.

Attachment A:
USGS Quad Map of Entiat River
Showing locations of instream structures developed in
Entiat Model Watershed Plan

Attachment B:
Plan view of vortex rock weir to be built on Entiat River